

WHAT IS CLAIMED:

1. A method for product optimization, the method comprising:

5 identifying at least one aspect of a product that is critical to customer satisfaction and a target value for at least one aspect;

characterizing the at least one aspect in terms of at least one contributing factor, and characterizing the at least one contributing factor in terms of at least one control factor; and

10 adjusting nominal design values for the at least one control factor such that variability in the at least one contributing factor is minimized and the target value for the at least one aspect is attained.

20 2. The method of claim 1 wherein the at least one contributing factor is characterized in terms of the at least one control factor based on a transfer function  $y=f(x)$ .

25 3. The method of claim 1 wherein the at least one contributing factor is additionally characterized in terms of at least one contributing noise factor and a transfer function  $y=f(x,n)$ .

30 4. The method of claim 1 wherein the at least one aspect and target value for the at least one aspect are identified based on consumer insight.

5. The method of claim 1 further comprising:  
identifying a target value for the at least one aspect in an aged condition; and

minimizing variability in the at least one contributing factor such that the target value for the at least one aspect in the aged condition is attained.

5                   6.    The method of claim 1 additionally comprising minimizing variability in the at least one contributing factor by reducing variability in the at least one control factor.

10                   7.    The method of claim 1 wherein the variability in the at least one contributing factor is reduced to a  $6\sigma$  level.

15                   8.    The method of claim 1 further comprising assessing the extent to which the target value is attained over the product life.

20                   9.    A computer-implemented system for facilitating product optimization, the system configured to:  
receive input defining a transfer function characterizing a contributing factor to a product aspect that is critical to customer satisfaction in terms of at least one control factor for the contributing factor;  
25                   receive input defining a nominal design value and a variability value for the at least one control factor; and  
output a mean and variability value for the contributing factor based on the transfer function and the nominal and variability values for the at least one control factor.

30                   10.   The system of claim 9 wherein a transfer function  $y=f(x,n)$  characterizes the contributing factor  $y$  in terms of the at least one control factor  $x$  and at least on

noise factor n, the system additionally configured to receive input defining a nominal value and a variability value for each at least one noise factor n and output a nominal and a variability value for the contributing factor based on the transfer function, the nominal design value and variability value for the at least one control factor and the nominal value and the variability value for the at least one noise factor.

11. The system of claim 9 wherein the variability in the contributing factor is reduced in response to input adjusting the nominal design value(s) for the at least one control factor.

12. The system of claim 9 wherein the variability in the contributing factor is reduced in response to input reducing the variability value(s) for the at least one control factor.

13. The system of claim 11 or 12 wherein the variability of the contributing factor is reduced to a 6σ level.

14. A method for product optimization, the method comprising:

a step for identifying at least one aspect of a product that is critical to customer satisfaction and a target value for the at least one aspect;

a step for characterizing the at least one aspect in terms of at least one contributing factor;

a step for characterizing the at least one contributing factor in terms of at least one control factor; and

a step for minimizing variability in the at least one contributing factor such that the target value for the aspect is attained.

5           15. The method of claim 14 wherein the step for minimizing variability in the at least one contributing factor involves adjusting a nominal design value for the at least one control factor.

10           16. The method of claim 14 wherein the step for characterizing the at least one contributing factor involves a step for defining a transfer function.

15           17. The method of claim 16 additionally comprising a step for characterizing the at least one contributing factor in terms of at least one noise factor.

20           18. The method of claim 14 wherein the step for minimizing variability in the at least one contributing factor involves reducing variability in the at least one control factor.

25           19. The method of claim 14 additionally comprising a step for assessing the extent to which the target value for the aspect is attained over the product life.

30           20. A computer-implemented system for facilitating product optimization, the system comprising:  
a means for receiving a transfer function characterizing a contributing factor to a product aspect that is critical to customer satisfaction in terms of at least one control factor for the contributing factor;

a means for receiving a nominal design value and a variability value for the at least one control factor; and

a means for computing a mean and variability value for the contributing factor based on the transfer function and the nominal design and variability values for the at least one control factor.

21. The system of claim 20 additionally comprising a means for defining a nominal value and a variability value for at least one noise factor wherein the mean and variability values for the contributing factor are computed based on a transfer function, the nominal design and variability values for the at least one control factor and a nominal and variability value for the at least one noise factor.